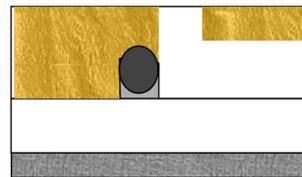
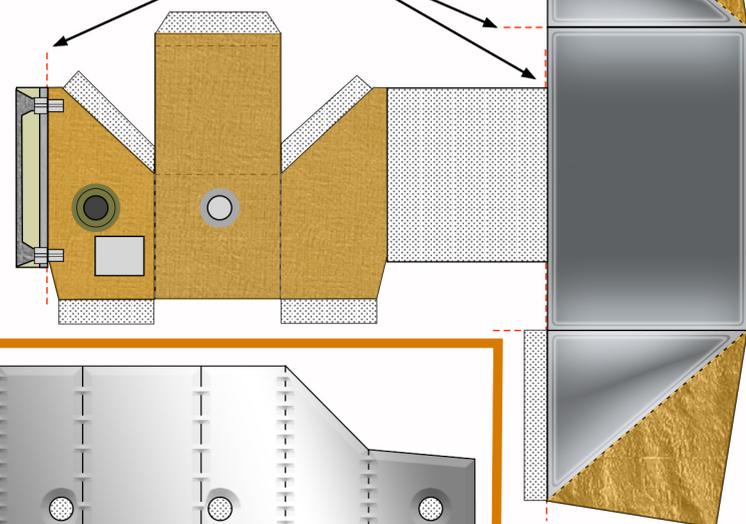


E

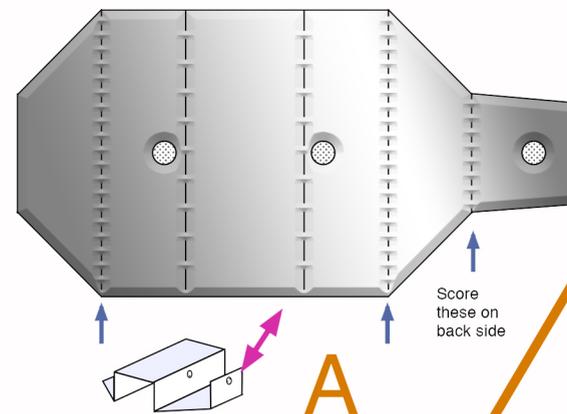


H

Score on back side
(red dashes)



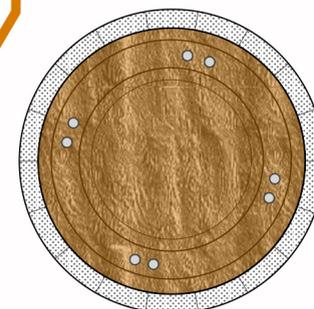
B



Score these on
back side

A

C

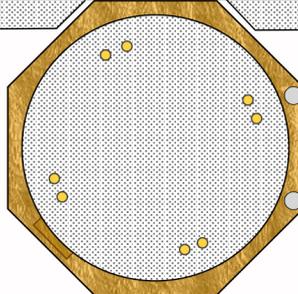
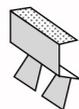


Score here on
front side

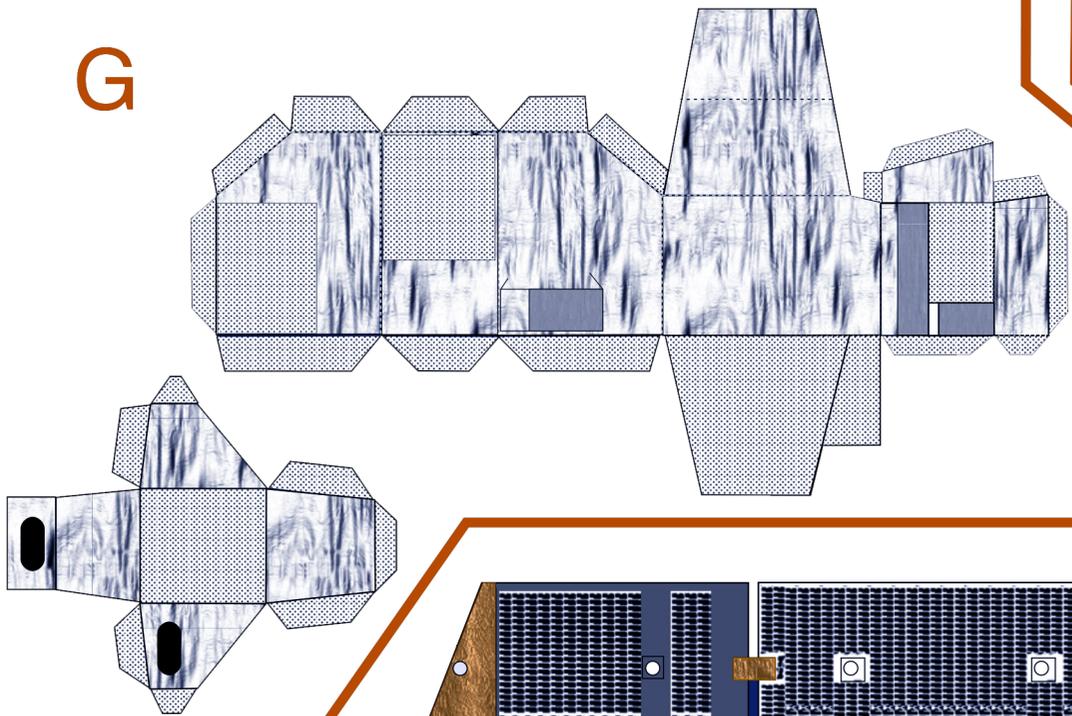
Score on back side

Fold like this

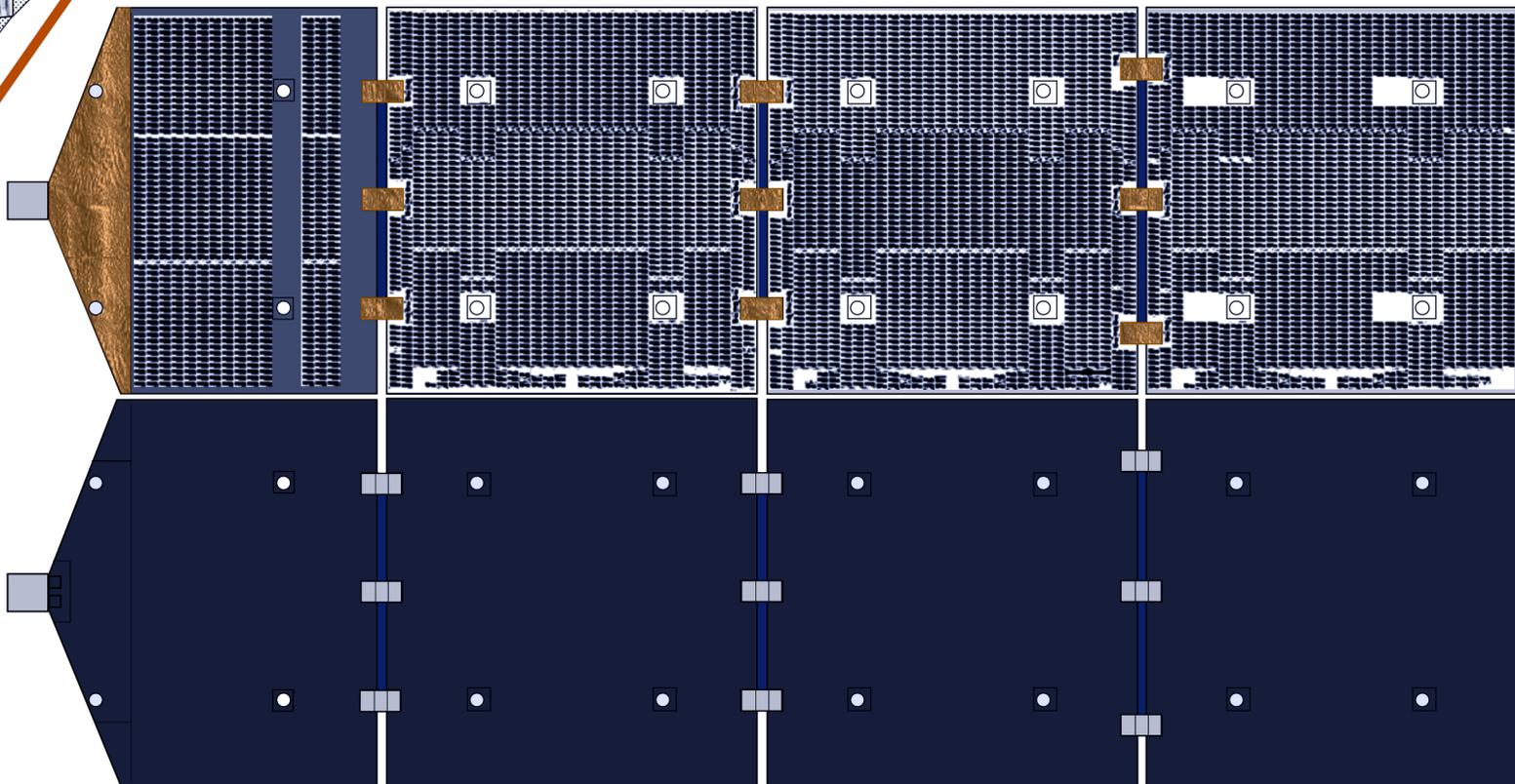
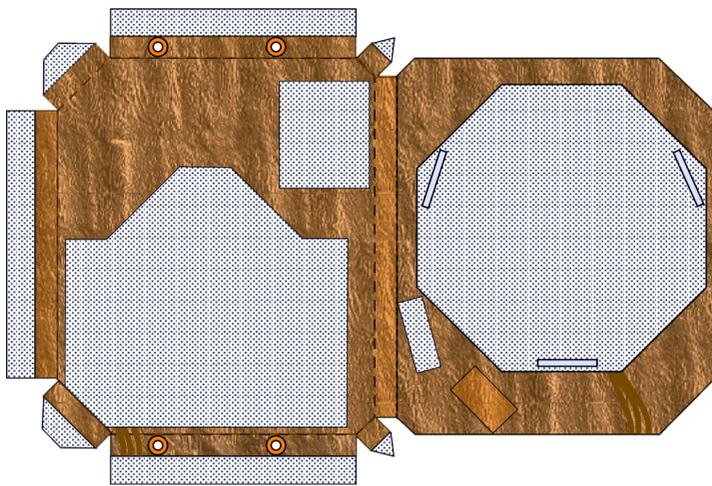
F



G



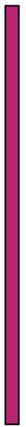
D



J

Cut coffee stirrer or stick to this length

Cut slit



LANDSAT 9 Scale Model

This 1/48th scale model represents an approximation of the general arrangement of the Landsat 9 satellite observatory.

General Instructions

Tools and materials needed:

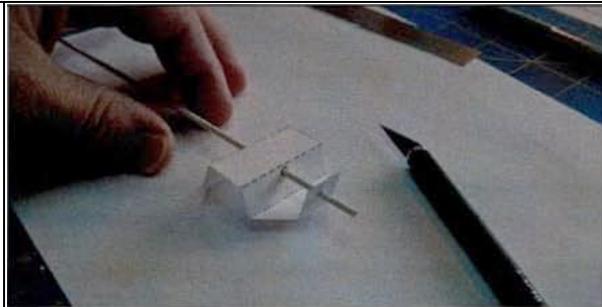
- Scissors
- Hobby knife
- White glue
- Toothpick, round
- Coffee stirring stick or straw, plastic
- Optional: removable low-tack tape

The model is printed on heavy cardstock and can be cut out using scissors or a hobby knife (e.g., X-Acto). The dashed lines on the drawings indicate folds. To get a sharp fold, lightly score the paper (before or after cutting) with a dull pointed object like an orange stick (cuticle stick for cosmetics) or a dried ballpoint pen. Alternatively, a dull hobby knife can be used with care and a very light touch, being careful not to cut all the way thru. Most of these scores are on the front (printed) side, and where a score on the reverse is required, that is noted on the drawing. Note that not all scores/folds are shown, as the obvious ones (main bus structure panels for example) are indicated by features of the drawing itself.

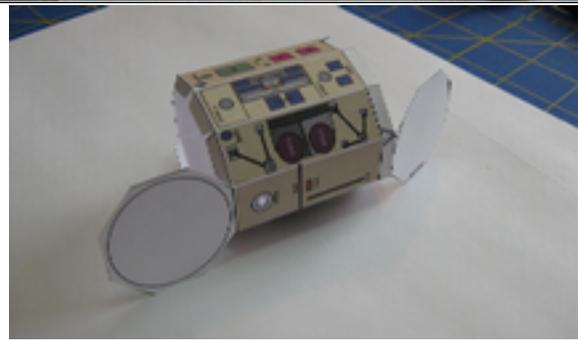
Areas on the drawings that are filled with a dot pattern are gluing surfaces. White glue (e.g., Elmers) is recommended, or a glue stick can also be used. You may need to hold the pieces together for a few minutes to allow the glue to set. This can be done by hand, small clamps, rubber bands or removable (low tack) tape. Remember to use only a little bit of glue, as the more you use, the longer it takes to dry.

Building Your Landsat 9 Model

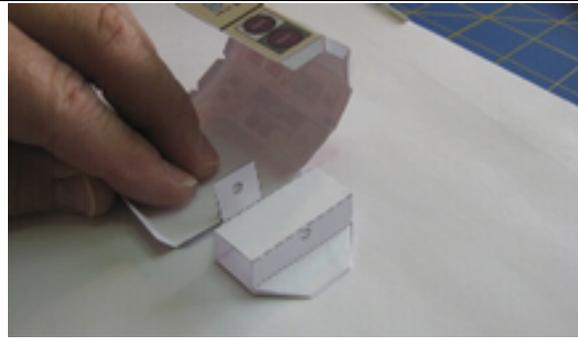
1. Before building the main structure, you need to construct a feature to reinforce the mounting rod for the solar array. This is labeled A on the drawing. Cut this part out and score it in three places on the back surface and twice on the printed side. Use your knife and a toothpick or pencil to punch out the three small holes. Fold it as shown in the little diagram. The coffee stirrer will slide into these holes to form a solid mount for the solar array in a later step.



2. Cut out the main bus structure, B, and score it in eight places to achieve the octagon shape. Also score across the top and bottom to make the gluing tabs. As with the inner array mount from the previous step, punch a hole out for the solar array at the SADA. It is best to have the stick you will use for this (coffee stirrer or similar) so that the hole is large enough but still snug.



3. Before gluing the bus together, glue the solar array mount to the inside of the bottom (hex shape) of the bus, making sure to align the SADA (Solar Array Drive Assembly) hole with the holes in the interior mount.



4. Then wrap the bus around and glue the long edge, forming a hexagon. Don't try to glue the entire assembly at once. Do a few panels, make sure it is aligned and square, let it dry and then do the rest after a bit. Tuck the tabs on each wall, fold the top and bottom, and glue that forming a nice solid bus.



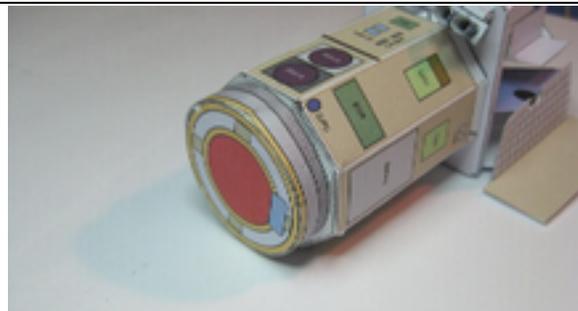
5. Cut out the two pieces of the propulsion module (section A). On the round piece, score a circle on the ring inside the cross hatched rim. Then snip along the multiple radial lines and bend those tabs up.

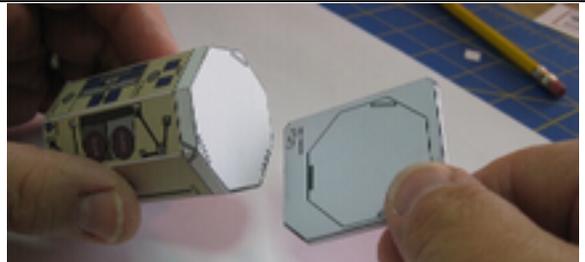
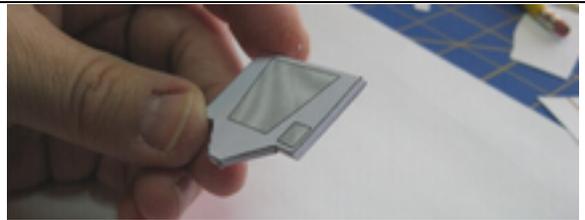
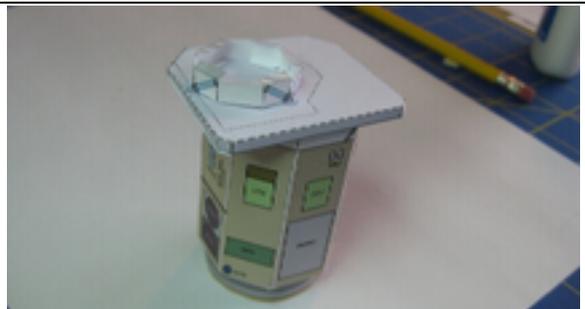


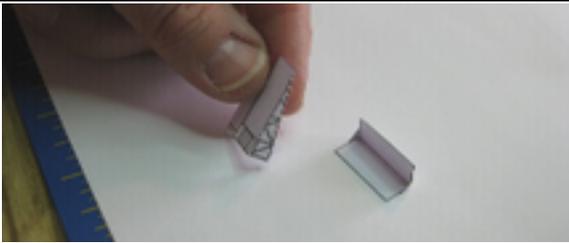
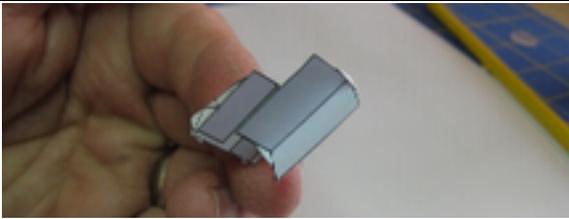
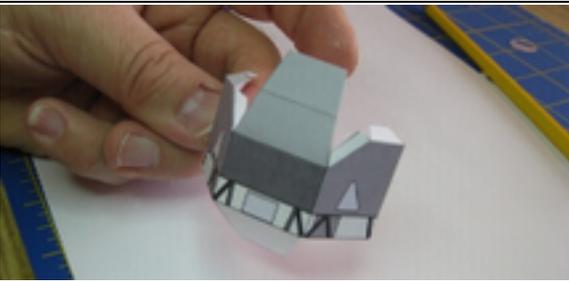
6. The long piece forms the outer wall of the module and there are five tabs that need to be scored and folded in. Wrap this around the round piece with the five tabs opposite the round wall, using the small tabs on the wall to glue to the rim. Hold it until the glue sets.

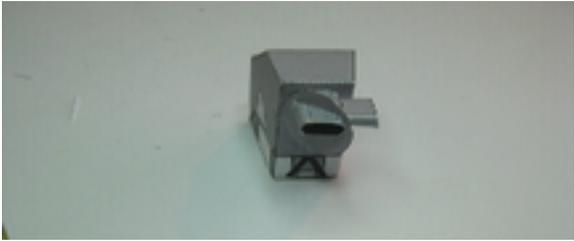
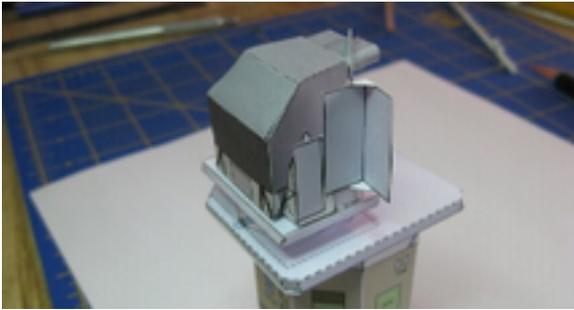
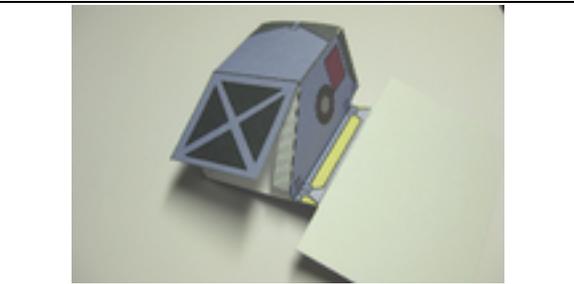
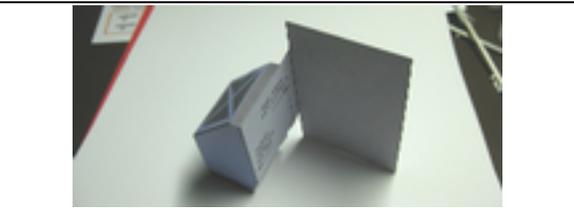
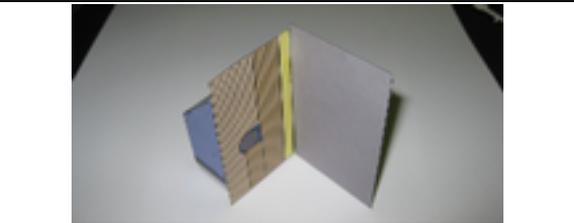


7. When you glue the prop module to the bottom of the bus make sure you align it so the blue panel is near the battery. This is indicated on the bottom of the bus.



<p>8. Cut out the main spacecraft deck, D. The folds on the left half form the edges and the right half wraps around. Score on the dashed lines and the folds on the cross-hatched glue tabs. Fold it over itself and glue together to make a flat box.</p>	
<p>9. When dry, glue the deck to the bus, making sure to align the three marks that indicate the three flexures on the bus with those on the deck.</p>	
<p>10. Cut out the instrument deck, E. Like the main deck, score the left half to form the edges, tuck the glue tabs underneath, and glue together. Note this assembly has no dashed lines for scoring, but it is fairly obvious where that needs to be.</p>	
	
<p>11. The long piece on the bottom of section E is the instrument deck flexures. This is a nine-sided assembly with glue tabs on the top and bottom. Score on the dashes, and glue it into a ring.</p>	
<p>12. When dry, attach it to the main deck, matching the blue outline of this shape. Note the side labeled "Deck" is glued to the spacecraft deck.</p>	

<p>13. When the previous assembly is dry, glue the instrument deck to the nine-sided flexure assembly.</p>	
<p>14. The other pieces on section E are the OLI radiators and Earth shade. Cut these out and score the cross hatched tabs. The top piece has a triangular truss on each side. Score these and fold back.</p>	
<p>15. Score the back side of the Earth shade and glue it to the front of the other radiator piece. Use the little triangle tabs to square up the shade. Put aside and allow to dry.</p>	
<p>16. Next cut out the three pieces that form OLI, G. Score and fold the glue tabs to make a box. Note the white bottom is intended to help achieve the trapezoidal footprint shape. There is also a score on the top to form a shallow angle.</p>	
<p>17. Glue the bottom edges first to form the shape. Allow to dry and then glue down the top.</p>	
<p>18. The instrument aperture is a bit tricky. After scoring the five glue tabs, you will need to fold the assembly around itself to form the rectangular tubes.</p>	
<p>19. Fold, tuck and glue the left side first and allow to dry. Then come back and roll and tuck the wider panel around and under.</p>	

<p>20. When this assembly is dry, glue it to the main OLI assembly. Finally cut a hole in the filter wheel and slide it over the main aperture.</p>	
<p>21. When the main OLI assembly is dry, glue it to the instrument deck on the shaded trapezoid area. Next you can glue the radiators and Earth shade to the corner of that deck.</p>	
<p>22. Cut out and score the TIRS instrument, H. Score along the blue walls on the front and form a box. The tan Earth shade needs to be scored on the back side and folded forward. The narrow section (with yellow-tan band) at the other end folds back and forms an extension at the corner of the Earth shield. That's what you glue together.</p>	
<p>23. Next glue the top (with the cross shape) onto the two glue areas along the angled sides. This forms the shape shown at right.</p>	
<p>24. The radiator grid goes on next. Tuck the yellow-tan end towards the large Earth shield. The radiator will hang over the edge opposite the shield.</p>	
<p>25. Finally glue the TIRS to the instrument deck.</p>	

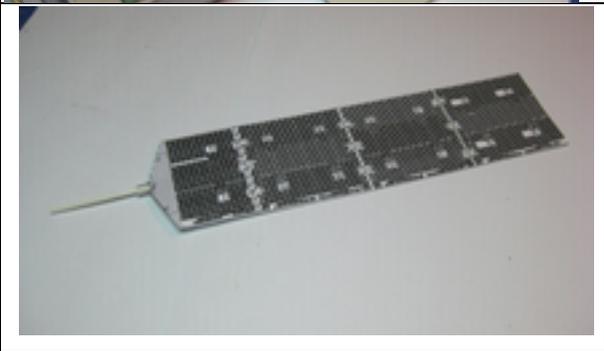
26/27. The star trackers are in section F. Cut the piece out, score as shown on the sheet and fold as shown.



28. Glue the star trackers to the bottom of the main deck in the area noted. Note that the photo shows a more complex version of the star trackers.



29. Cut out the solar array but don't cut the two halves apart. Simply score along the long edge and fold back on itself and glue that together to make a nice stiff panel. Take a short piece of coffee stirrer (plastic straw) cut to the length noted and cut a slit in the end. Slide the tab at the root of the solar array into the slit (which should go from the root to the edge of the cells), glue, and allow plenty of time to dry. Note the stick used in the model in these photos is not long enough. Remember use a little glue to set it up, as you can always add more glue later for reinforcement.



30. When dry, slide the solar array rod into the holes in the bus, being careful to align it through the interior structure you installed in Step 1.



31. You're done! You now have a really cool LDCM model to impress all your friends!

